

## On-Call Intermodal Transportation Consultant Services

### ADOT Project TPD04-04

## Identification of Emissions Sources for Pinal County

### TAC Meeting Summary

**June 21, 2005**

#### **In attendance:**

Beverly Chenausky – Arizona Department of Transportation: [bchenausky@azdot.gov](mailto:bchenausky@azdot.gov)  
Randy Sedlacek - Arizona Department of Environmental Quality: [rfs@azdeq.gov](mailto:rfs@azdeq.gov)  
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Earl Withycombe – Sierra Research: [ewithycombe@sierraresearch.com](mailto:ewithycombe@sierraresearch.com)  
Joe Breyer – Works Consulting: [joe@itwillwork.com](mailto:joe@itwillwork.com)  
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#### **Discussion of Revised Work Scope and Schedule**

Bill Loudon summarized the changes to the project original scope and schedule since the last TAC meeting the main points were:

1. Discussion in Sept. '04 TAC meeting reflected a shift in direction on PM10 analysis
  - Shift away from identification of sources for elevated monitor readings
  - Focus on dirt roads as a source
  - Develop a tool for predicting concentration based on roadway volume and soil characteristics
  - Include the development of a “Blueprint” for the development of a PM10 Attainment Plan
2. Schedule was extended to allow for revised scope
3. Budget was increased to reflect increased effort for PM10 analysis
4. The focus in the ozone analysis would be as a regional issue and focus on precursor emissions as a function of growth
  - Shift away from identification of sources for elevated monitor readings
  - Produce county-wide estimates of emissions of ozone precursors
  - Examine the implications of alternative assumptions about growth and travel characteristics

#### **Progress on Tasks:**

Bill Loudon, Earl Withycombe and Joe Breyer provided a summary of the progress on tasks.

#### **Task 1 – Define Geographical Scope and Analysis Framework**

Completed with the revised scope, schedule and budget

- Geographic Coverage – County-wide but case- study areas for PM10
- Analysis Timeframe – Current and 2025
- Schedule – Extend 6 months to February '06
- Budget – Increased by \$40,000 for PM10 Attainment Plan Blueprint

## **Task 2- Assemble and Collect Data**

### **Ozone Analysis**

#### Completed

- Roadway inventory assembled in GIS database
- Historical and recent traffic counts assembled in GIS database
- MOBILE6 input parameters obtained from MAG
- Forecasts of growth in population, employment and travel were obtained from MAG and from ADOT's Pinal Corridors Planning Model (PCPM)

### **PM10 Analysis**

#### Completed

- Monitored traffic volumes, speed and vehicle sizes on five unpaved road segments
- Collected unpaved road surface soil samples at same locations
- Received and reformatted meteorological data for dispersion modeling purposes

#### Remaining

- Complete laboratory analysis of unpaved road soil silt and moisture content

## **Task 3 Prepare and Analyze Emissions Estimates**

### **Ozone Analysis**

#### Completed

- Obtained emission estimates for 2006, 2016 and 2026 from MAG conformity analysis

#### Remaining

- Reconcile population and employment forecasts
- Use forecasts to estimate future travel
- Estimate emissions of ROG and NOX
- Analyze possible implications of growth for ozone concentrations

### **PM10 Analysis**

#### Completed

- Unpaved road emissions equations set up to receive silt content, moisture content and speed data
- Dispersion model set up with local meteorological data to receive emissions data

#### Remaining

- Complete unpaved road emissions analysis
- Complete dispersion modeling of unpaved road emissions
- Complete spreadsheet tool for analyzing unpaved road air quality impact
- Complete analysis of control efficiency and cost effectiveness of unpaved road control measures

**Task 4 Prepare Project Reports  
Ozone and PM<sub>10</sub> Analyses**

Completed

- Progress reports

Remaining

- Prepare user's manual for unpaved road spreadsheet tool
- Prepare task reports for Tasks 1 – 3
- Prepare Final Report

**Task 5 Prepare PM<sub>10</sub> Attainment Plan Blueprint**

Completed

- Initial analysis of Pinal County PM10 monitoring data
- Serious PM10 non-attainment areas with problems similar to Pinal County were identified
- Attainment plans of three areas were reviewed to determine future air quality forecasting techniques
- An initial literature search of air quality planning in development was conducted

Remaining

- Complete final analysis of Pinal County PM10 air quality data
- Complete review of PM10 forecasting models used in other serious non-attainment areas
- Complete evaluation of forecasting models under development

**Review of Scope and Schedule for Remaining Work**

Bill Loudon and Earl Withycombe described the schedule for the work remaining.

**Emissions Estimates for Ozone Analysis**

3<sup>rd</sup> Quarter 2005

- Examine differences in population and employment forecasts
- Produce travel estimates for a range of forecasts
- Produce emissions estimates for each set of travel forecasts
- Assess possible implications for ozone concentrations
- Prepare task report

**Unpaved Road Model Tool**

3<sup>rd</sup> Quarter 2005

- Complete unpaved road soil sample silt and moisture content analysis
- Complete unpaved road emissions analysis
- Complete dispersion modeling analysis of unpaved road emissions
- Complete draft unpaved road spreadsheet modeling tool
- Complete draft model user's manual

**PM10 Attainment Plan Blueprint**

3<sup>rd</sup> Quarter of 2005

- o Complete analysis of Pinal County PM10 data
- o Complete review of PM10 forecasting models in other serious non-attainment areas

4<sup>th</sup> Quarter of 2005

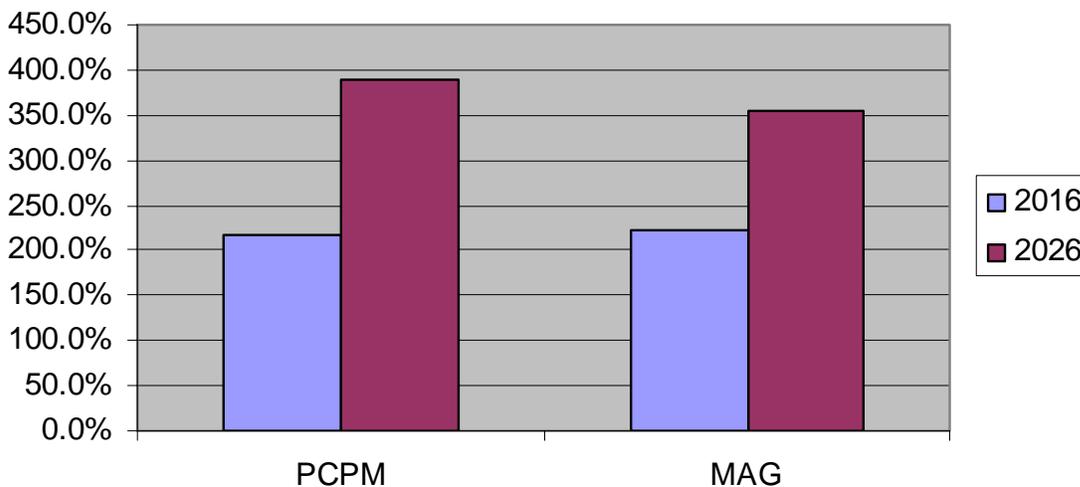
- o Complete draft of Blueprint report
- o Complete draft of Final Report

**Discussion of Specific issues in the Project**

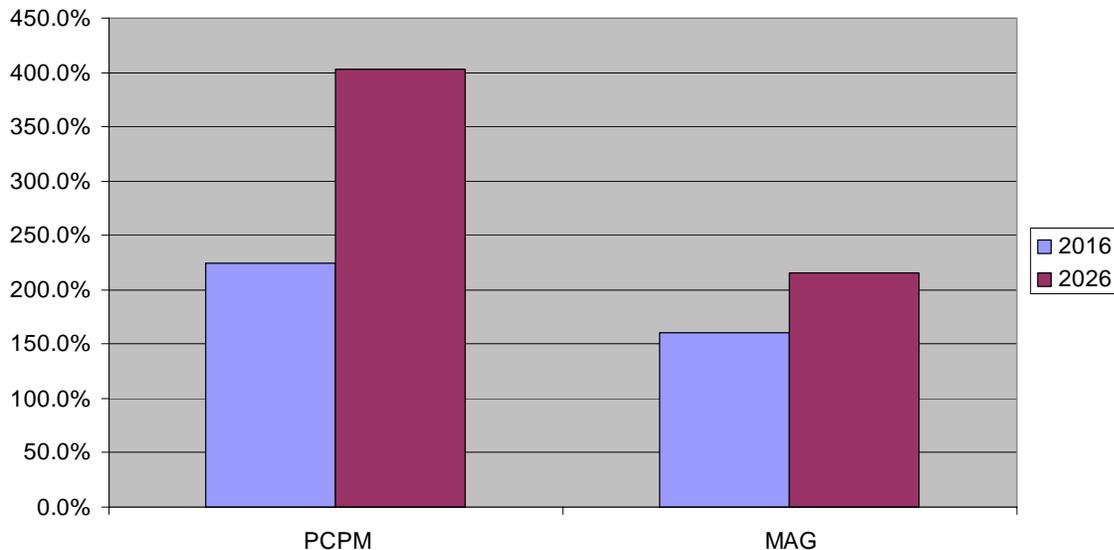
**Population and Employment Forecasts**

Bill Loudon that two set of long range forecasts of population and employment had been acquired: one from the Maricopa Association of Governments (MAG) and one developed by ADOT consultants for the Pinal Corridors Planning Model (PCPM). Ozone precursor emissions estimates are available for the MAG forecasts but not for the PCPM forecasts. While the forecasts are fairly similar in the existing population and employment estimates and the forecasts for population, the two sources are significantly different in the amount of growth expected in the employment in Pinal County. The table below provides a comparison of two set s of forecasts.

**Comparison of Future Forecasts of Population in Pinal County as a Percentage of Existing (2006) Population**



### Comparison of Future Forecasts of Employment in Pinal County as a Percentage of Existing (2006) Employment



Bill recommended that the team use the MAG forecasts of emissions as a base for each forecast year but also examine the PCPM forecasts as an alternative scenario for growth. Bill will develop a methodology with for revising the estimates of emissions to reflect the differences in the amount of employment forecasted in the county and how that is likely to affect trip patterns and trip lengths in the county. Bill will also continue to explore why the differences exist in the two forecasts. The TAC agreed with the approach outlined.

#### Use of Project Resources Saved from Selection of the PM<sub>10</sub> Emission inventory Software

Earl Withycombe was asked if there would be savings in the budget as a result of the State already picking a PM<sub>10</sub> emissions inventory software package and if so how he would recommend the available budget be used. Earl said he thought there would be some budget saving. Options for use of this money include (1) developing instructional material for how the County could transfer data into the model, (2) confirming that all the data on traffic volumes on unpaved roads could be entered into a database along with the information that is available on paved roads, (3) PM<sub>10</sub> portable monitoring to “calibrate” the source-receptor relationship in the PM<sub>10</sub> case-study modeling analysis being done for the five locations in the project, and (4) providing help in the use of EASY, a MOBILE6 peripheral software package.

Based on budget limitations, Earl indicated that the use of portable monitors to calibrate the unpaved road modeling results would not be possible. He recommended that the budget savings be used to describe how unpaved road traffic volume data would be entered into the emission inventory program in the PM<sub>10</sub> plan blueprint report and to investigate how other relevant activity data could be transferred to the inventory program.

#### Next Steps

Work will continue on Task 2-5 as described. A third TAC meeting will be scheduled for October of 2005 in which the results of Tasks 1-4 will be reviewed. Bill will work with Beverly, Randy and

someone from PCAQCD to formulate a list of who might be invited besides the regular TAC members.

Bill agreed to prepare a summary of the TAC meeting and work with Beverly to make sure the meeting summary, Power Point presentation and selected data sets described in the meeting are made available on the project web site.